Attorney's Docket No.: 07844-636001 / P589   *IFW*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Arnold, et al.   Art Unit   : 2123
Serial No. : 10/816,582   Examiner : Unknown
Filed   : March 31, 2004
Title   : EDGE DETECTION BASED STROKE ADJUSTMENT

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Applicant submits the references listed on the attached form PTO-1449. As this application was filed subsequent to June 30, 2003, only non-US references are included.

The applicant is aware that the two approaches to rendering a "synthetic bold" font described below were known and/or in public use prior to the filing date of the present patent application.

The first approach manipulates a bitmap of a glyph. In the simplest case, the glyph is rendered two or more times with a translation of the origin. For example, draw a text string, then move the origin right by one pixel and draw it again. One PostScript driver used an algorithm where synthetic bold text is rendered four times, using one pixel offsets in each of x and y directions. This technique is sometimes called "smear bold", because it is as if each pixel is smeared in the offset direction. The magnitude of the offset(s) determines the amount of emboldening, which can scale with the size of the font. The offset amounts in x and y do not need to be equal. Some algorithms smear only in the x direction, while others smear in both x and y, but by different amounts.

The second approach manipulates an outline of a glyph. Scalable fonts are represented by an outline, which is a collection of graphics paths. Normally, a glyph is rendered to a bitmap by using a "fill" operation on the outline; pixels inside a path are marked while those outside a path are untouched. It is also possible to "stroke" an outline. This may be used for artistic effect or to create an "outline" style of font. If the fill and stroke colors are the same, a combination of fill

Applicant : Arnold, et al.
Serial No. : 10/816,582
Filed : March 31, 2004
Page : 2 of 2

Attorney's Docket No.: 07844-636001 / P589

and stroke results in an emboldened glyph. The amount of emboldening depends on the width of the stroke. Stroking is limited to darkening amounts of an integer number of high resolution pixels.

Some PostScript drivers use stroked text for synthetic bold. In the Portable Document Format (PDF) specification, one of the text rendering modes is "Fill, then stroke text." The intention is that the two operations are as closely matched as possible. In some systems, the fill and stroke operations may be performed by different subsystems. For example, the fill can be performed by a type rasterizer to produce a bitmap. The stroke can be performed by a graphics rasterizer and superimposed on the glyph bitmap. Even if the same hinted outline is used for both, the match may not be perfect.

This statement is being filed within three months of the filing date of the application or before the receipt of a first Office action on the merits. Please apply any charges or credits to Deposit Account No. 06-1050.
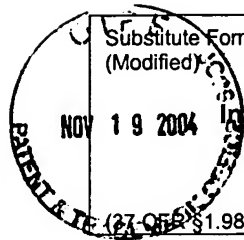
Brenda Leeds Binder has been given limited recognition under 37 CFR §10.9(b) as an employee of the Fish & Richardson PC law firm to prepare and prosecute patent applications wherein the patent applicant is a client of Fish & Richardson PC and the attorney or agent of record in the applications is a registered practitioner who is a member of Fish & Richardson, which is the case in the present application. A copy of the Limited Recognition document, which expires December 1, 2004, is attached hereto.

Respectfully submitted,

Date: Nov 17, 2004

Brenda Leeds Binder
Limited Recognition under 37 CFR §10.9(b)

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Substitute Form PTO-1449 (Modified) NOV 1 9 2004 (27 QFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office **Information Disclosure Statement by Applicant** (Use several sheets if necessary)	Attorney's Docket No. 07844-636001	Application No. 10/816,582
		Applicant Arnold, et al.	
		Filing Date March 31, 2004	Group Art Unit 2123

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	4331955	05/25/82	Hansen			
	AB	4486785	12/04/84	Lasher et al.			
	AC	4580231	04/01/86	Tidd et al.			
	AD	4591844	05/27/86	Hickin et al.			
	AE	4667247	05/19/87	Karow			
	AF	4672369	06/09/87	Preiss et al.			
	AG	4675830	06/23/87	Hawkins			
	AH	4720705	01/19/88	Gupta et al.			
	AI	4783652	11/08/88	Lumelsky			
	AJ	4827255	05/02/89	Ishii			
	AK	4851825	07/25/89	Naiman			
	AL	4907282	03/06/90	Daly, et al.			
	AM	4908780	03/13/90	Priem, et al.			
	AN	4945351	07/31/90	Naiman			
	AO	5099435	03/24/92	Collins, et al.			
	AP	5132674	07/21/92	Bottorf			
	AQ	5241653	08/31/93	Collins, et al.			
	AR	5278678	01/11/94	Harrington			
	AS	5299308	03/29/94	Suzuki et al.			
	AT	5301267	04/05/94	Hassett, et al.			
	AU	5386509	01/31/95	Suzuki, et al.			
	AV	5398306	03/14/95	Karow			
	AW	5459828	10/17/95	Zack et al			
	AX	5544294	08/06/96	Cho et al.			
	AY	5568597	10/22/96	Nakayama et al			
	AZ	5771048	06/23/98	Nankou et al			
	AAA	5910805	06/08/99	Hickey et al.			

Examiner Signature	Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 07844-636001		Application No. 10/816,582
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant Arnold, et al.		
		Filing Date March 31, 2004		Group Art Unit 2123

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	ABB	5929866	07/27/99	Arnold			
	ACC	5940080	08/17/99	Ruehle et al.			
	ADD	5943063	08/24/99	Dowling			
	AEE	6282327	08/28/01	Betrisey et al.			
	AFF	6342890	01/29/02	Shetter			
	AGG	6356278	03/12/02	Stamm et al.			
	AHH	6563502	05/13/03	Dowling et al.			
	AII	2001/0048764 A1	12/06/01	Betrisey et al.			
	AJJ	2002/0093476 A1	07/18/02	Hill et al.			

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation Yes	No
	AKK	86/04703	08/14/86	PCT				
	ALL	94/06094	03/17/94	PCT				
	AMM	94/29843	12/22/94	PCT				
	ANN	00/52673	09/08/00	PCT				
	AOO	0 214 547	03/18/87	EP				
	APP	0 304 509	06/16/93	EP				
	AQQ	0 397 299	11/14/90	EP				
	ARR	0 428 356	05/22/91	EP				
	ASS	0 435 391	07/03/91	EP				
	ATT	0 468 652	01/29/92	EP				
	AUU	0 506 381	09/30/92	EP				
	AVV	0 590 923	04/1994	EP				
	AWW	0 654 778	05/24/95	EP				
	AXX	0 667 596	08/16/95	EP				

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Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation Yes	Translation No
	AYY	0 693 740	01/24/96	EP				
	AZZ	0 772 144	05/07/97	EP				
	AAAA	1 077 445	02/21/01	EP				
	ABBB	2 236 463	04/1991	GB				
	ACCC	900039606	10/30/91	JP			Abstr.	

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	ADDD	Foley et al.; "Computer Graphics Principles and Practice -- Second Edition"; Addison-Wesley Publishing Company; 1990; pp. 132-140, pp. 617-646, and pp. 965-979.
	AEEE	"gasp – Grid-fitting And Scan-conversion Procedure", http://www.microsoft.com/typography/otspec/gast.htm, 1998, 2 pages
	AFFF	"The TrueType instruction set", http://www.microsoft.com/typography/otspec/ttinst.htm, 1997, Cover sheet (1 page); pp. 181-261
	AGGG	Platt, John C., Optimal Filtering for Patterned Displays, Microsoft Research, IEEE Signal Processing Letters, Vol. 7, No. 7, pp. 179-80 (2000)
	AHHH	Betrisey, et al., 20.4: Displaced Filtering for Patterned Displays, SID 00 Digest, 4 pages
	AIII	Microsoft Corporation, What is ClearType? [online], page last updated January 16, 2002, www.microsoft.com/typography/cleartype/what.htm?frame=%208fsize
	AJJJ	Microsoft Corporation, Microsoft ClearType FAQ [online], page last updated September 26, 2002,. http://www.microsoft.com/typography/faq/faq15.htm
	AKKK	Microsoft Corporation, ClearType Antialiasing, 2003 [online], http://msdn.microsoft.com/library/default.asp?url=/library/en-us/gdi/fonttext-osgn.asp
	ALLL	Sub-Pixel Font Rendering Technology - Implementation Details, last edit on December 8, 1999 [online], http://grc.com/cttech.htm
	AMMM	Sub-Pixel Font Rendering Technology - Who Did It First? [online], last edit on February 29, 2000, http://grc.com/ctwho.htm
	ANNN	Sub-Pixel Font Rendering Technology – Visitor Dialog Q&A [online] last edit October 4, 2003, http://grc.com/ctdialog.htm
	AOOO	Sub-Pixel Font Rendering Technology - How It Works [online], last edit on February 11, 2002, http://grc.com/ctwhat.htm

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